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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/024,883 | 12/17/2001 | Hiroyuki Okuyama | 112857-307 | 6182 |

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EXAMINER

BREWSTER, WILLIAM M

ART UNIT PAPER NUMBER

2823

DATE MAILED: 05/09/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/024,883

Applicant(s)

OKUYAMA ET AL.

Examiner

William M. Brewster

Art Unit

2823

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 November 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-37 is/are pending in the application.
- 4a) Of the above claim(s) 1-29 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 30-37 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Generally

In a telephone conversation on 5 May 2003 with Thomas C. Basso, ESQ., attorney for applicant, Counselor Basso stated that the examiner did not examine the applicant's elected claims from Paper No. 6. The Non-final Rejection of Paper No. 7, sent 17 December 2002 is withdrawn.

Election/Restrictions

Claims 1-29 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in Paper No. 6.

Applicant's election without traverse of claims 30-37 in Paper No. 6 is acknowledged.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 30, 32, 33, 36, 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nunoue, U.S. Patent No. 5,905,275 in view of Horino et al., U.S. Patent No. 6,072,197.

Nunoue teaches a method of fabricating a semiconductor light emitting device, comprising the steps of: in fig. 1B, forming a wurtzite-type compound semiconductor layer 13 on a substrate 11 oriented along a principal plane such that a difference-in-height portion is formed in a surface of the wurtzite-type compound semiconductor; forming a crystal growth layer 13a, at least at least a portion of which is oriented along an inclined plane inclined with respect to the principal plane by crystal growth on the surface; and applying a first conductive cladding layer 13b, an active layer 13c, and a second conductive layer 13d in a stacked arrangement along a region extending in parallel to said inclined plane, col. 4, line 60 - col. 5; limitations from claim 32: in fig. 7E, forming a first electrode 70, and a second electrode 69, wherein an amount of current injected in the light emission regions is capable of being adjusted to establish wavelengths of light emitted from the light emission regions to a desired value (inherently an LED operates with current proportional to wavelength); limitations from claim 32: wherein the semiconductor light emitting device is separated into a plurality of light emission regions electrically independent from each other (although the specification describes a single region, integrated circuits would have many such regions which would be isolated to prevent leakage from device to the other).

Nunoue does not specify the substrate comprises a wurtzite compound, but Horino does. Horino teaches a semiconductor light emitting device comprising: in fig.

5A, a substrate 34 comprising a substrate layer composed of a wurtzite compound, col. 1, lines 39 - 49, formed along a principal plane of the substrate wherein the layer includes a different in-height portion formed in a surface of the substrate layer; a crystal growth layer 12 formed on the surface of the wurtzite compound substrate layer at least a portion of the crystal growth layer is oriented along an inclined plane that is inclined with respect to the principal plane, wherein the crystal growth layer is grown at a temperature of about 1100° C or less, col. 16, lines 24 - 43, although no pressure is mentioned, it is reasonable that the flow rates of 2-100 $\mu\text{mol/min}$. would encompass about 100 Torr or more, and wherein the growth of the crystal growth layer depends on a shape of the difference-in-height portion; a first conductive cladding layer 12, an active layer 14 and a second conductive layer 15 formed on the crystal growth layer in a sequentially stacked arrangement oriented along two or more planes of the crystal growth layer, including the inclined plane such that one or more light emission regions are formed; and one or more electrodes separately formed in the light emission regions, col. 15, lines 12 - 57. Horino gives motivation in col. 5, lines 12-33. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to recognize that combining Horino's process with Nunoue's invention would have been beneficial because it forms triaxial anisotropy in the active layer reducing the threshold current necessary for the oscillation.

Claims 31, 34, and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nunoue in view of Horino as applied to claims 30, 32, 33, 36, 37 above, and further in view of Wolf, V. I.

Nunoue and Horino do not specify how they form their electrodes, but Wolf, V. I, pp. 535-6, does present a way of forming electrodes using the lift off technique. Wolf in fig. 17 forms a first mask material layer, forming a first window region in the first mask material layer, and forming a first electrode layer through the first window, region; and may also forming a second mask material layer, forming a second window region in the second mask material layer at a position different from that of the first window region, and forming a second electrode layer through the second window region; limitations from claim 34: forming a resist layer, and forming a specific pattern of an electrode layer by a lift-off process; limitations from claim 35: on the drawings on the right side of fig. 17, forming a resist layer (or polymer) having a window region, forming an electrode layer to cover said resist layer including an inner region of said window region, and removing said resist layer together with said electrode layer excluding an electrode portion formed on a bottom region of the window region by a lift off process, pp. 535-6. Wolf gives motivation in p. 535, ¶ 4. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to recognize that combining Wolf's process with Nunoue's and Horino's invention would have been beneficial because hard to remove residues are avoided.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William M. Brewster whose telephone number is 703-305-5906. The examiner can normally be reached on Full Time.

Art Unit: 2823

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on 703-306-2794. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-3432 for regular communications and 703-305-3432 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

WB
May 7, 2003

William M. Bremster